

A METHOD AND SYSTEM OF ADAPTIVE REPLACEMENT CACHE WITH TEMPORAL FILTERING

ABSTRACT

A method for adaptively managing pages in a cache memory with a variable workload comprises defining a cache memory; organizing the cache into disjoint lists of pages, wherein the lists comprise lists T_1 , T_2 , B_1 , and B_2 ; maintaining a bit that is set to either “S” or “L” for every page in the cache, which indicates whether the bit has short-term utility or long-term utility; ensuring that each member page of T_1 is marked either as “S” or “L”, wherein each member page of T_1 and B_1 is marked as “S” and each member page of T_2 and B_2 is marked as “L”; and maintaining a temporal locality window parameter such that pages that are re-requested within a window are of short-term utility and pages that are re-requested outside the window are of long-term utility, wherein the cache comprises pages that are members of any of lists T_1 and T_2 .